continued to spread over central Illinois till about 11 P.M. About noon on the 13th another very severe squall started from south-western Iowa, where considerable damage was done in Fremont and Page counties: the storm increased in fury while spreading over north-western Missouri till about 3 P.M. Another storm of less severity visited north-eastern Missouri and southern Illinois on the evening of the same day. A severe squall with hail reached, on the afternoon of the 18th, into north-western Iowa, coming from Dakota. A southerly squall reached Polk and Jasper counties early on the 16th.

On the whole, the weather during July has been very fine: bright skies, aglow with ripening sunshine, alternated with enriching rains, — summed up in splendid crops of small grain and hay, and excellent pastures, and giving promise of a good crop of corn, for the fall season promises well also.

State university of Kansas, Lawrence.

Weather report for July. — In four of the past fifteen years, the July mean temperature has been lower than in this year; but the July rainfall has been but once exceeded during that period (in 1871).

Mean temperature, 76.18°, which is 2.17° below the July average. The highest temperature was 96.5°, on the 23d; the lowest was 56°, on the 9th: giving a monthly range of 40.5°. The mercury reached or exceeded 90° on seventeen days. Mean temperature at 7 A.M., 71.27°; at 2 P.M., 85.71°; at 9 P.M., 73.90°.

Rainfall, 7.23 inches, which is 2.94 inches above the July average. Rain fell in measurable quantities on nine days. There were five thunder-showers. The rain of the 30th yielded 3.10 inches. The entire rainfall of the seven months of 1883, now completed, has been 29.03 inches, which is 7.99 inches above the average for the corresponding period of the preceding fifteen years, and is 1.43 inches above the total rainfall of the year 1882.

Mean cloudiness, 39.46% of the sky, the month being 1.89% cloudier than the average. Number of clear days (less than one-third cloudy), 18; half-clear (from one to two thirds cloudy), 7; cloudy (more than two-thirds), 6. There were three entirely clear days, and three entirely cloudy. Mean cloudiness at 7 A.M., 38.39%; at 2 P.M., 45.48%; at 9 P.M., 34.52%.

Wind: S.W., 39 times; N.E., 15 times; N.W., 12 times; N., 9 times; S., 7 times; W., 5 times; S.E., 5 times; E., once. The entire distance travelled by the wind was 10,901 miles, which is 2,229 miles above the July average. This gives a mean daily velocity of 351.64 miles, and a mean hourly velocity of 14.65 miles. The highest velocity was 40 miles an hour, from 1.30 to 2 A.M. on the 12th.

Mean height of barometer, 29.086 inches; at 7 A.M., 29.111 inches; at 2 P.M., 29.071 inches; at 9 P.M., 29.078 inches; maximum, 29.381 inches, on the 18th; minimum, 28.679 inches, on the 11th; monthly range, 0.702 inch.

Relative humidity: mean for the month, 71.4; at 7 A.M., 80.3; at 2 P.M., 54.7; at 9 P.M., 79.1; greatest, 97, on the 31st; least, 20, on the 2d. There was no fog.

NOTES AND NEWS.

Circumstances were not favorable to the production of remarkable essays at the recent meeting of the American association. The attendance was not large. The officers of the meeting, and especially those who had to make addresses, could scarcely be expected to produce elaborate papers in addition to their other labors. As the number of addresses per meeting has increased, we may observe more readily some of the effects of the system that demands them. The most evident result is, that usually, where we gain one good address, we lose two or three good papers.

The distance of the meeting from their homes affected especially members of sections A, B, C, and D, devoted to the exact sciences. Perhaps it affected the quality as well as the number of their papers. There were not many from the east to present essays, though quite as many as could have reasonably been expected; but there were scarcely any from the locality of the meeting and its neighborhood. Local interest, both as to authors and hearers, was of course deficient. In short, there was nothing remarkable in those sections to spur production, and the product was not remarkable. It was good, but not great.

Some of the papers seem to have lost their way among the sections; a paper that was chiefly botanical having gone before the chemists, and the paleontological papers being divided between biology and geology. In some cases the affinities of authors rather than of subjects may have been consulted, though probably the discrepancy was mostly created in efforts to equalize the amount of work in the different sections.

During the progress of the meeting, it being found that botanists were present in unusual numbers, a botanical club was formed. The immediate object was the organization of botanical excursions. An ultimate object is to arrange for preparing a petition to memorialize congress respecting differences between the rulings of the post-office department as to the sending of plants by mail at home and abroad. The organization of the club was somewhat informal. Prof. W. J. Beal of Lansing, Mich., was appointed president, and John M. Coulter of Crawfordsville, Ind., secretary. The roll was signed by twenty-five botanists who were present at the first session of the club, and their number was increased before the meeting of the association adjourned.

We have before alluded to the singular want of executive ability, or of co-ordination in achieving results, which marred the work of the local committee. That continued throughout the meeting, with many embarrassing results. We again refer to it, not to find fault anew, but to mention that the committeemen themselves acknowledged their blunders most heartily in their farewell speeches, and that their kind intentions were manifest throughout.

— Students of meteorology will be interested in a paper lately read by M. Faye before the French academy of sciences on the whirlwinds of sand observed by Col. Prejevalsky in central Asia. M. Faye believes that such sand-storms, like those of Mexico, India,

and the Sahara, have the same origin and mechanical action as the tornadoes of the United States and all water-spouts. They are vertical spiral movements, moving horizontally and nearly in a straight line.

— The operations of France in the region of Annam have naturally excited great interest in the geography and ethnography, statistics and commerce, of Annam. A crowd of publications of all sorts are constantly appearing. References of the briefest sort to some of the more notable may be of interest to those who ignore the political side of the question. J. Gaultier publishes for Mallard-Cressin a chart of the region on the scale of 1: 850,000. This is stated to be on the largest scale of any of the maps of this region, and as perfect as the state of knowledge will admit. Another map by Henri Mager, though smaller, is very carefully executed, and includes a plan of the fortress of Hanoi. The oriental studies of the author have enabled him to unify and correct the nomenclature in a satisfactory manner. Romanet du Caillaud has published a long memoir on the protectorate of France over Annam, and the relations between the latter state and China, in the quarterly bulletin of the Société de géographie.

— The enterprise of Johns Hopkins university is shown by the publication of one of its circulars in midsummer, filled with scientific notes in mathematics, physics, biology, and philology. They are all abstracts of papers read before the different active associations in the university, and in most cases will probably be published in full elsewhere. The circular also reprints, from the Royal society's proceedings, the abstract of Dr. Martin's Croonian lecture; and, from the London *Times*, an account of the eclipse observations of May 6, to which Dr. Hastings appends a brief note, pointing out one mistake made by the writer. A list of mathematical models belonging to the university, and of works in the Assyrian and other oriental languages found in the Peabody institute, are also given.

— The following appointments to fellowships in science in Johns Hopkins university are published: In mathematics, G. Bissing and E. W. Davis of Baltimore, and A. L. Daniels of Kendallville, Ind.; in physics, Gustav A. Liebig, jun., of Baltimore, and Charles A. Perkins of Ware, Mass.; in chemistry, D. T. Day of Baltimore, J. R. Duggan of Macon, Ga., and E. H. Keiser of Allentown, Penn.; in biology, W. H. Howell and L. T. Stevens of Baltimore.

— Müller's record of the literature of pollination and dissemination for 1880–81 has recently appeared in Just's *Jahresbericht*, containing abstracts of one hundred and forty-nine papers, with many useful items, both critical and supplementary, by the able reviewer. Though these records are very useful when they reach us, their value would be much increased if it were possible to present them to the public more promptly after their preparation. As it is, they are usually two or three years in appearing.

— *Nature* states that the Dutch government have decided not to grant the sum of thirty thousand guilders, which Baron Nordenskiöld claims as the discoverer of the north-east passage. The decision is founded on the motive which led the States-general, in 1596, to offer this award; viz., to find a passage of *commercial* value to the nation. Baron Nordenskiöld having, however, discovered what may be termed a purely *scientific* one, the award, it is argued, has not been earned. As several reasons have been advanced for this claim made by the gallant Swedish explorer, we do not think we err, says *Nature*, when we assert that it was his intention to have expended the sum in the interest of science; viz., on an expedition to the arctic regions.

— George Mantoux has just edited a volume containing the letters and journals of La Pérouse, on his celebrated and unfortunate voyage around the world; preceded by a memoir of that officer, who was last heard from at Botany Bay, and, with his entire party, was wrecked on one of the South Sea Island, where the survivors were murdered by the native. It forms one of the *Bibliothèque d'aventures et de voyages* issued by Dreyfous of Paris.

— A Yokohama paper states that Mr. John Milne, whose researches on earthquakes, as explained by him to the British association at Southampton, have excited great interest in scientific circles, and who has since returned to his duties in Japan, has applied to the Japanese authorities to establish an observatory, in order that he may be able to thoroughly investigate underground phenomena. He has sent the authorities a long treatise upon the earthquakes of Japan.

— The *London daily news* says that the Darwin memorial fund has risen to £3,300. Among the most interesting of the sums that the treasurer has received is a cheque for £94.4, collected in Finland.

— The next number of the *Journal* of the Cincinnati society of natural history will contain an illustrated paper by Professor Mickleborough, upon a specimen found by Mr. D. A. McCord of Oxford, O., which has been creating much interest among the paleontologists of Cincinnati and vicinity. It is a small slab of limestone showing on one side the shell of an Asaphus, and on the other the legs of the animal. Fortunately, the rock was split in such a way as to show both the legs and their cast. The characters of the ambulatory appendages of the trilobite are finely shown, and confirm in a remarkable manner the discoveries of Mr. Walcott, who several years since established beyond a doubt the existence of legs in specimens of Calymene.

— The bodies of Professor Palmer, and his companions Capt. Gill and Lieut. Carrington, assassinated by the Bedouin, have been discovered by Capt. Warren, and transported to England, where it is anticipated they will find a resting-place in St. Paul's cathedral.

— Mr. Charles Depérais read a paper before *l'Institute royal d'encouragement de Naples*, April 5, in which he advocated the embalming of bodies by boiling them in a solution of chloride of calcium, and then in a solution of sulphate of soda.

— The government of Ontario has published for the Entomological society of that province a general index to the thirteen annual reports upon injurious insects which the society has made to the commis-

sioner of agriculture. The index is prepared by William Baynes-Reed, and consists of a serial and a classified list of illustrations, and a general index to the text. It appears to be prepared and printed carefully.

— The death of the famous M'tesa, King of Uganda and baiter of missionaries, is announced.

— The following papers were prepared during the past year by members of the Lawrence scientific school, Harvard university, under the supervision of Dr. E. L. Mark in the embryological laboratory at the Museum of comparative zoölogy: —

On the development of Oecanthus, and its parasite Teleas, by Howard Ayers of Fort Smith, Ark.; on the development of the posterior fissure of the spinal cord, and the reduction of the central canal, in the big, by William Barnes of Decatur, Ill.; notes on the development of Phryganidae, by William Patten of Watertown, Mass.; the relation of the external meatus, tympanum, and eustachian tube, to the first visceral cleft, by Albert H. Tuttle of Dorchester, Mass.

The papers by Mr. Ayers and Mr. Patten have been awarded respectively the first and one of the second Walker prizes by the Boston society of natural history, as already stated in these columns. All are to be published in the course of a few weeks.

— The eighth annual report of the Buffalo microscopical club shows a membership of forty-six, — a gain of fifteen during the year. The average attendance at the monthly meetings is stated to have been about twenty-five, — certainly a very large percentage.

— Prof. D. P. Penhallow, having resigned his connection with the experiment department of Houghton farm as botanist and chemist, has accepted the lectureship of botany at McGill university.

— Messrs. Allen, Coues, and Brewster sign a call for a convention of American ornithologists, to be held in New-York City, beginning on Sept. 26, 1883, for the purpose of founding an American ornithologists' union, upon a basis similar to that of the 'British ornithologists' union.' The object of the union will be the promotion of social and scientific intercourse between American ornithologists, and their co-operation in whatever may tend to the advancement of ornithology in North America. A special object, which it is expected will at once engage the attention of the union, will be the revision of the current lists of North-American birds, to the end of adopting a uniform system of classification and nomenclature, based on the views of a majority of the union, and carrying the authority of the union.

It is proposed to hold meetings at least annually, at such times and places as may be hereafter determined, for the reading of papers, and the discussion of such matters as may be brought before the union. Those who attend the first meeting will be considered *ipso facto* founders. Active and corresponding members may be elected in due course after organization of the union, under such rules as may be established for increase of membership. Details of organization will be considered at the first meeting.

— 'The books of science' is the title of a work announced by Leypoldt as in preparation by William C. Lane of Harvard college library. It is to be an annotated catalogue of the most trustworthy works for the study chiefly of the physical and mathematical sciences. From what we know of the compiler and of the manuscript, a portion of which we have examined, we may confidently predict a very useful work.

— In his address before the American forestry congress last year at Cincinnati, recently printed in the *American journal of forestry*, Prof. F. L. Harvey gives a catalogue of the forest-trees of Arkansas, of which he enumerates a hundred and twenty-nine indigenous species. According to his summary, Arkansas is remarkable for its extensive belts of pine, for the area of hard-wood growth, and for the number of species usually classed as shrubs, which here attain the dimensions of trees. More than half the species belong to the six orders Magnoliaceae, Rosaceae, Urticaceae, Oleaceae, Juglandaceae, and Cupuliferae. Professor Harvey believes that physical conditions, rather than geological horizon, affect the specific character of the vegetation in Arkansas, where the north-western part of the state is upland and paleozoic, and the remainder lowland and of more recent date.

RECENT BOOKS AND PAMPHLETS.

Paluzie, F. La historia natural explicada á los niños, según las clasificaciones de Couvier. Madrid, *Perdiguero*, 1883. 160 p. 8°.

Registro general de la industria española, con una sección extrangera, en que figuran las fábricas y establecimientos industriales más importantes de los diversos países de Europa y América, y agenda del industrial, continuación del Almanaque publicado desde 1875, por la *Gaceta industrial*. Año primero (1881-82). Madrid, *Tello*, 1882. 238 p. 4°.

Ritsema Bos, J. Insektenschade op bouwen Weiland. Handleiding voor de kennis van de kleine vijanden van akker-en weidebouw. Groningen, 1883. 216 p. 8°.

Roiti, A. Elementi di fisica. Firenze, 1883. 12+356 p. 16°.

Roura, J. Tratado sobre los vinos, su destilación y aceites. Madrid, *Perdiguero*, 1883. 113 p. 8°.

Sack, J. Die verkehrs-telegraphie der gegenwart. Wien, 1883 (Elektro-techn. bibl., v.). 272 p., illustr. 8°.

Sieiro y González, J. Principios de psicología ó anthropologia psiquica, lógica y ética. (Oreuse), *impr. Ramos*, 1882. 319 p. 8°.

Smith, Ch. Conic sections. London, 1883. 8°.

Smith, J. M. The Hades of Ardenne, a visit to the caves of Han. Described and illustrated by the T. T. Club. London, 1883. illustr. 8°.

Sonklar v. Innstaedten, C. Von den ueberschwemmungen, enthaltend die ueberschwemmungen im allgemeinen, chronik der ueberschwemmungen und mittel der abwehr. Wien, 1883. 151 p. 8°.

Sundman, G., and **Reuter**, O. M. The fishes of Finland (and Sweden). pt. i. Helsingfors, 1883. 9 p., 3 col. pl. f°. Will contain about 30 parts.

Tobler, A. Die elektrischen uhren und die feuerwehr-telegraphie. Wien, 1883 (Elektro-techn. bibl., xiii.). 240 p., illustr. 8°.

Ungarn, Geologische special karte von. Herausgegeben von der k. ungarischer geologischen reichsanstalt. Budapest, 1883.

Walras, L. Théorie mathématique de la richesse sociale. Leipzig, 1883. 256 p., 6 pl. 8°.

Wittstein, G. C. Handwörterbuch der pharmakognosie des pflanzenreichs. Breslau, 1883. 994 p. gr. 8°.

Zacharias, J. Die elektrischen leitungen und ihre anlage. Wien, 1883. (Elektro-techn. bibl., xvi.) 272 p., illustr. 8°.